

Fusion3

F200 3D Printer

REPAIR: BED PROBE MOTOR ASSEMBLY REPLACEMENT

Revision 10/2/2025

REPLACING THE BED PROBE MOTOR ASSEMBLY

If your bed probe motor assembly becomes broken or damaged and you need to replace it, follow these instructions.

BEFORE YOU BEGIN

Your printer should be off and cold.

Your printer should be unplugged.

Estimated repair time: 15-30 minutes.

Repair difficulty: Moderate to advanced

Tools required:

- Torx T10 driver
- 2.5mm hex drive (ball and straight end)
- 1.5mm hex drive
- "Black stick" aka non-metallic poking stick

Extra parts required:

- 15x M3x6 SHCS
- 2x small zip ties
- Replacement bed probe motor assembly

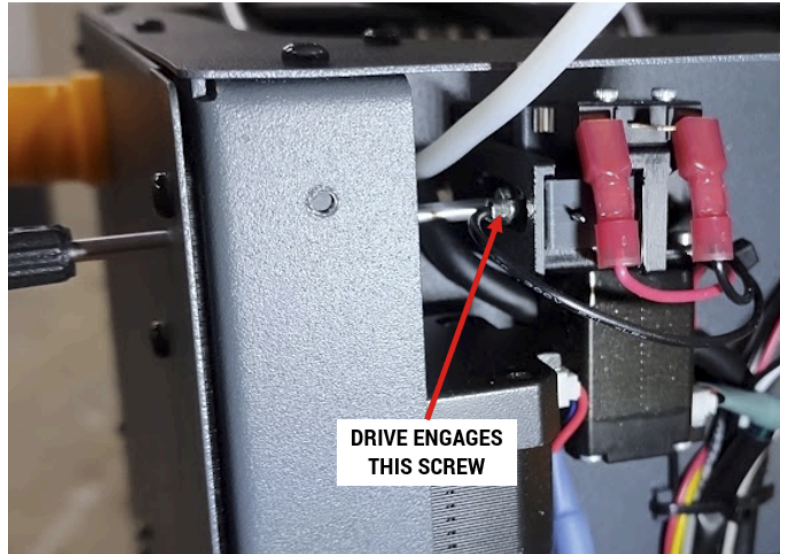
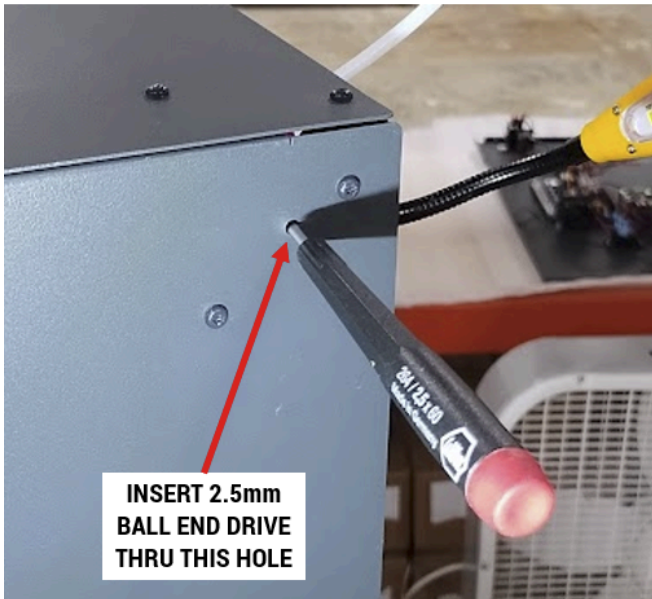
WARNING: The end of the bed probe wire is very sharp and has a tendency to "whip" since the wire behaves like a spring. Wear eye protection when handling and installing the bed probe wire, until both ends are securely mounted in the printer.

NOTE: Some of these pictures were taken on a pre-production printer and your printer will look slightly different.

NOTE: Depending on your serial number, your bed probe motor may use a separate motor wire or it may be integrated into the motor. The replacement assembly you receive may be a different configuration, depending on parts availability. If you are going from integrated wire -> standalone wire, you may need to request a motor wire harness from us, separate from the motor assembly.

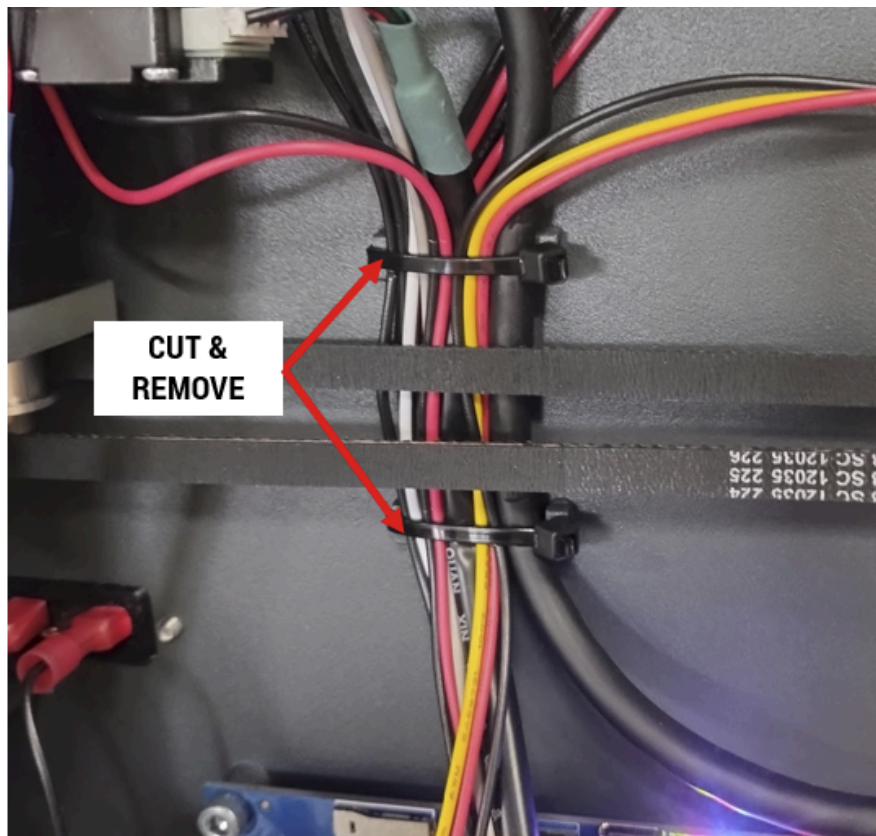
REMOVAL

1. Remove the rear panel from the printer by following [THESE INSTRUCTIONS](#).
2. On the bed probe motor assembly, loosen the wire locking screw.

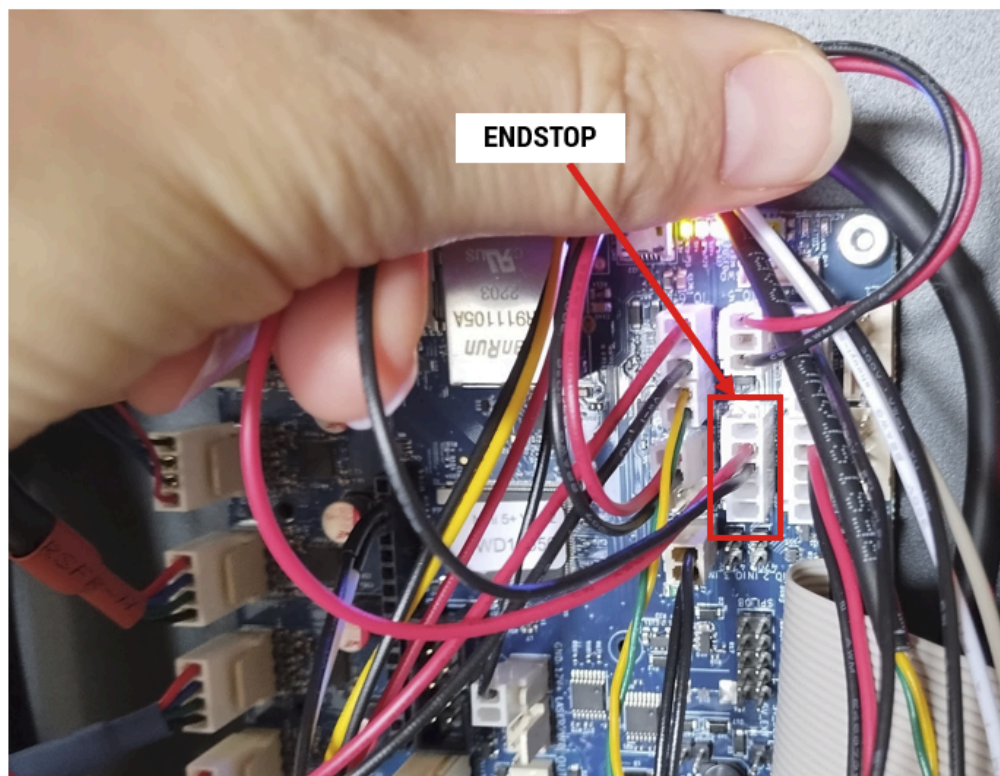
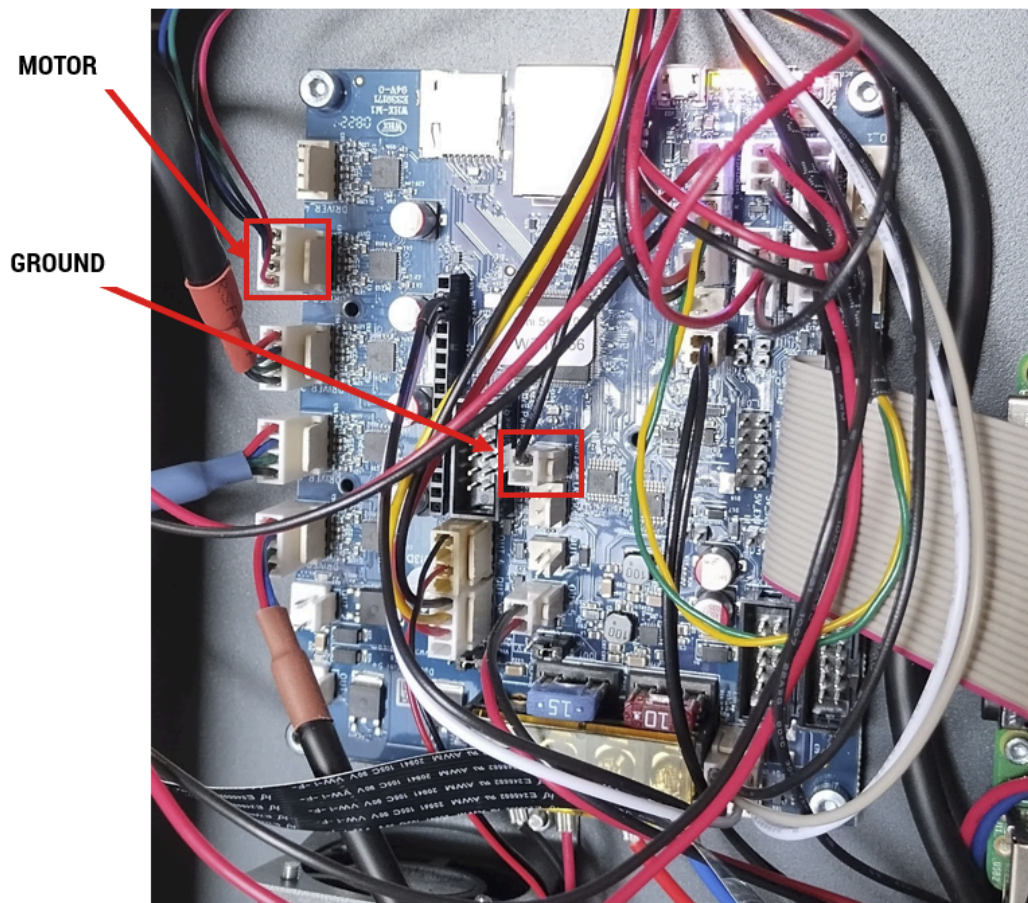


It is **NOT NECESSARY** to remove the side panel from the printer and we **STRONGLY** recommend you **DO NOT** remove this panel.

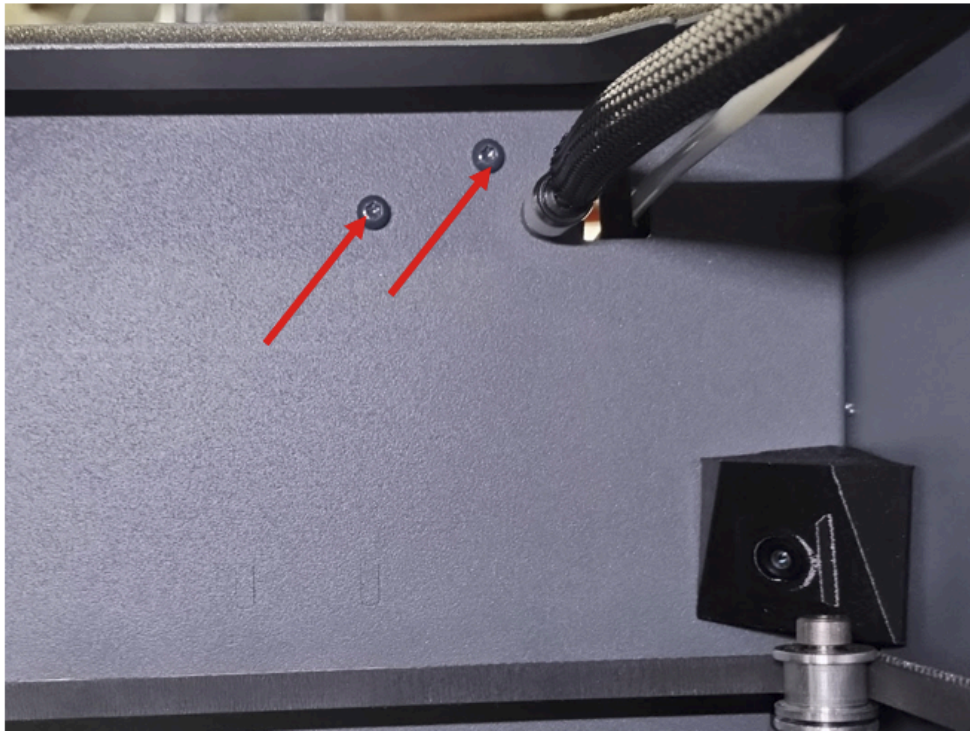
3. Clip the wire retention zip ties as shown.



4. Disconnect the endstop input, ground, and motor wire from the board.

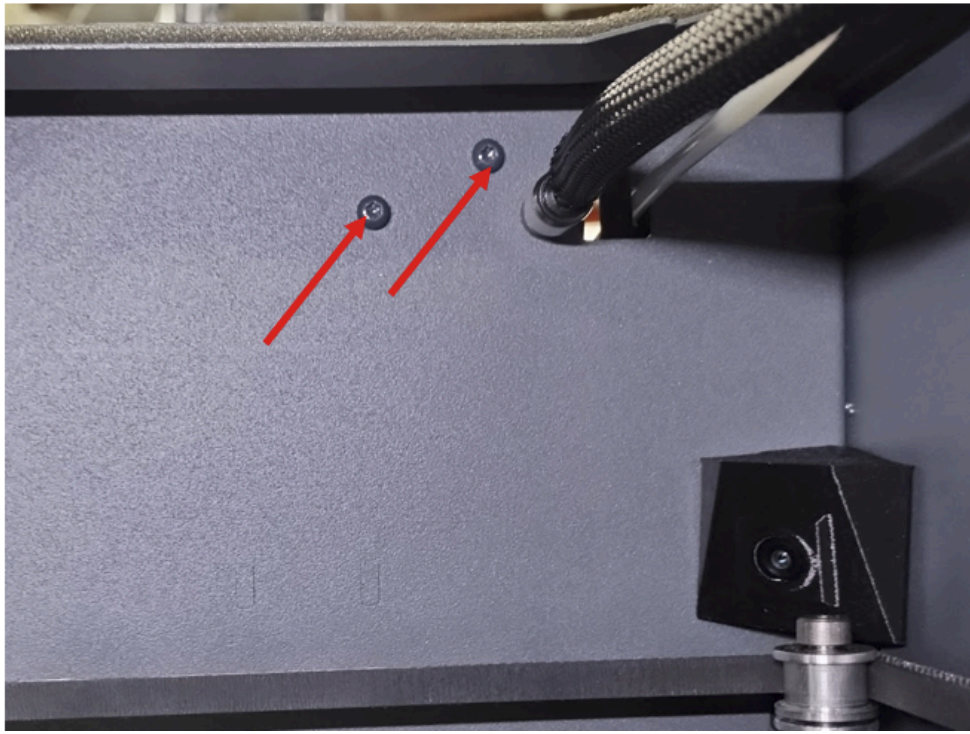


5. Remove the 2 screws holding the motor assembly to the bulkhead. Slide the motor assembly straight back so that the nitinol wire exits the assembly.

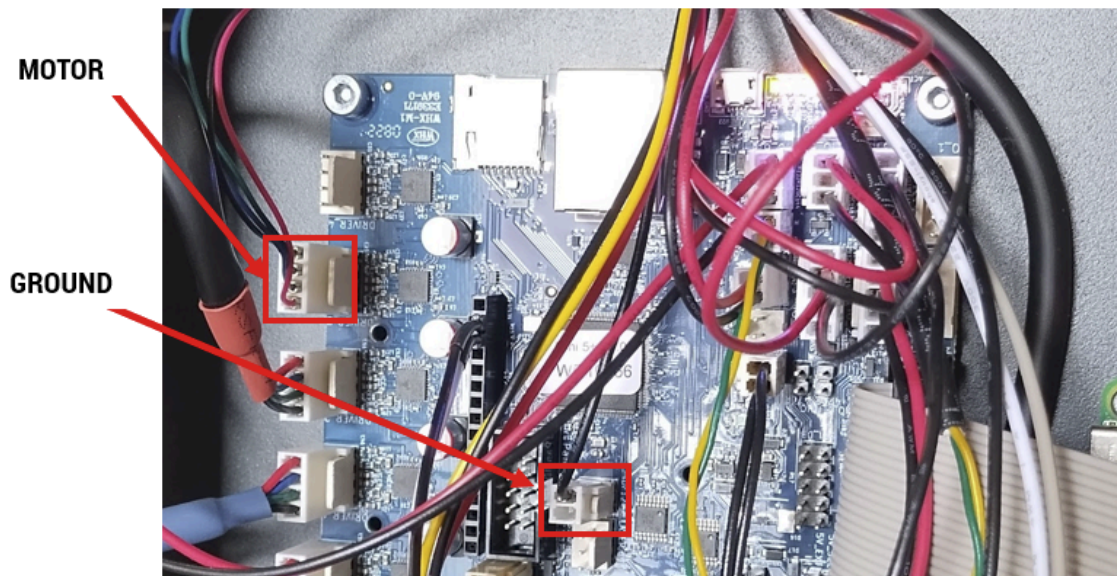


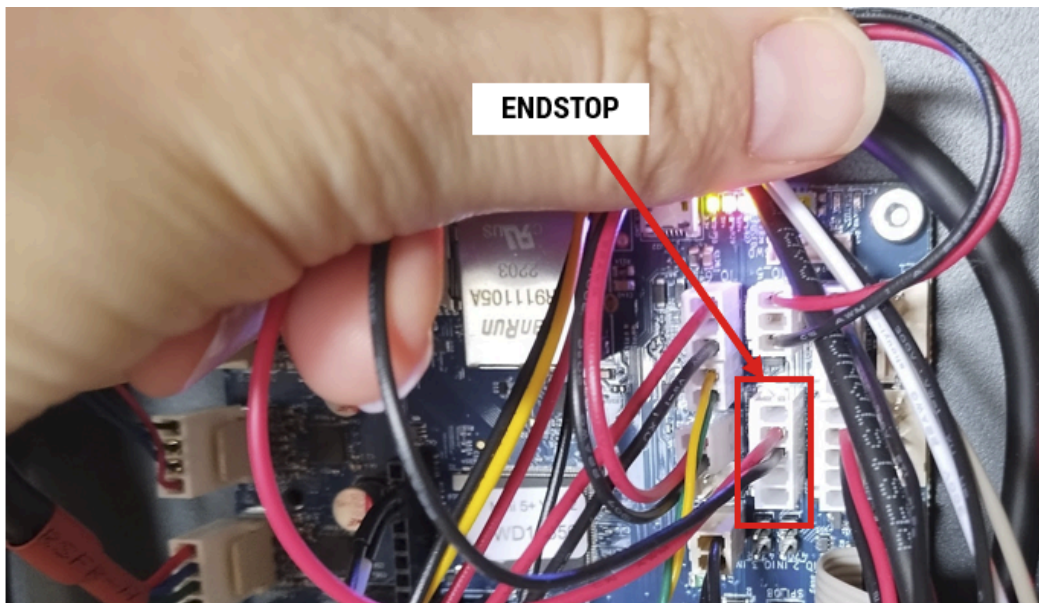
INSTALLATION OF NEW MOTOR ASSEMBLY

1. Install the new motor assembly onto the bulkhead using the provided 2x M3x6 SHCS. These screws are threading into plastic so get them finger tight only.

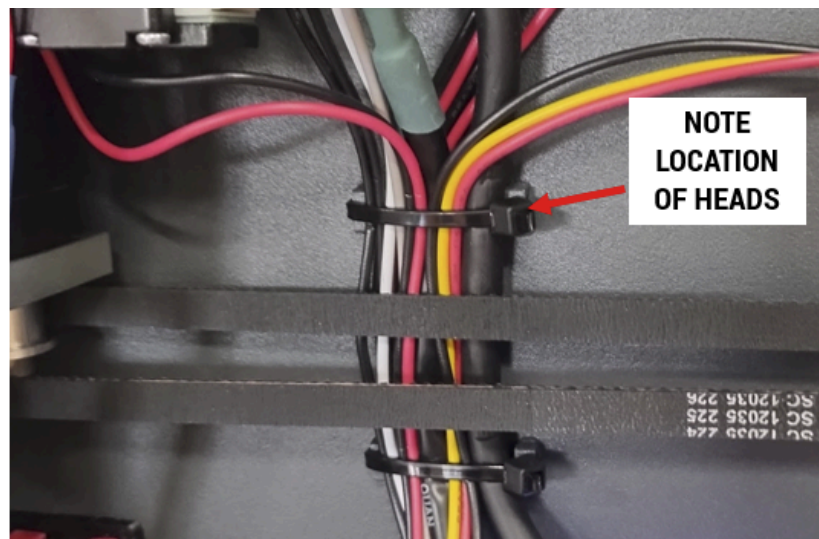


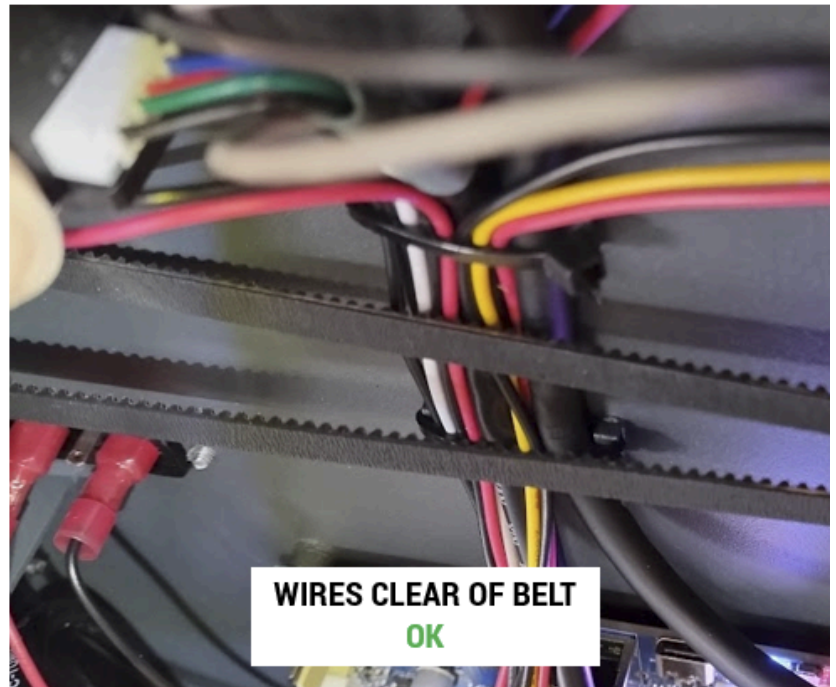
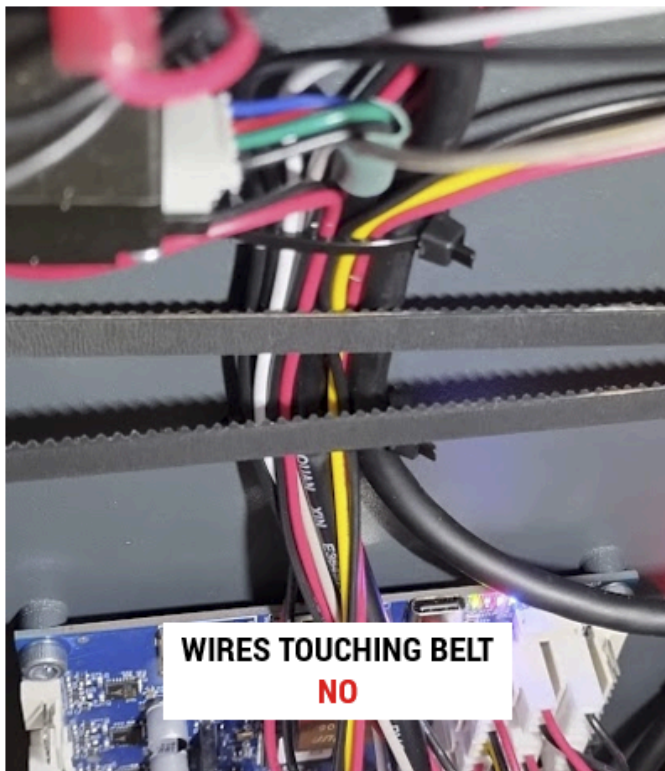
2. Connect the wires to the board as shown. Polarity is critical; most of the connectors are keyed so they only go on the correct way.



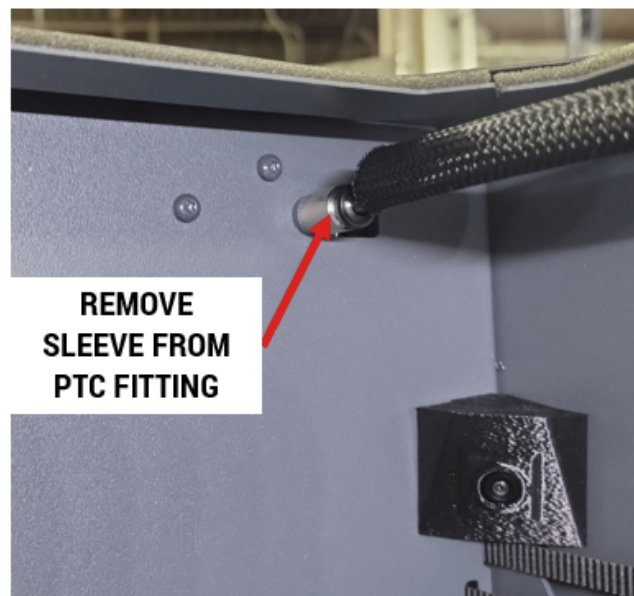


3. Reinstall the wire handling zip ties. **It's critical that the wires do not touch the XY belts.** Adjust the wires and zip ties until the wires lay clean and flat without touching the belts. A zip tie gun is recommended to get the zip ties sufficiently tight.

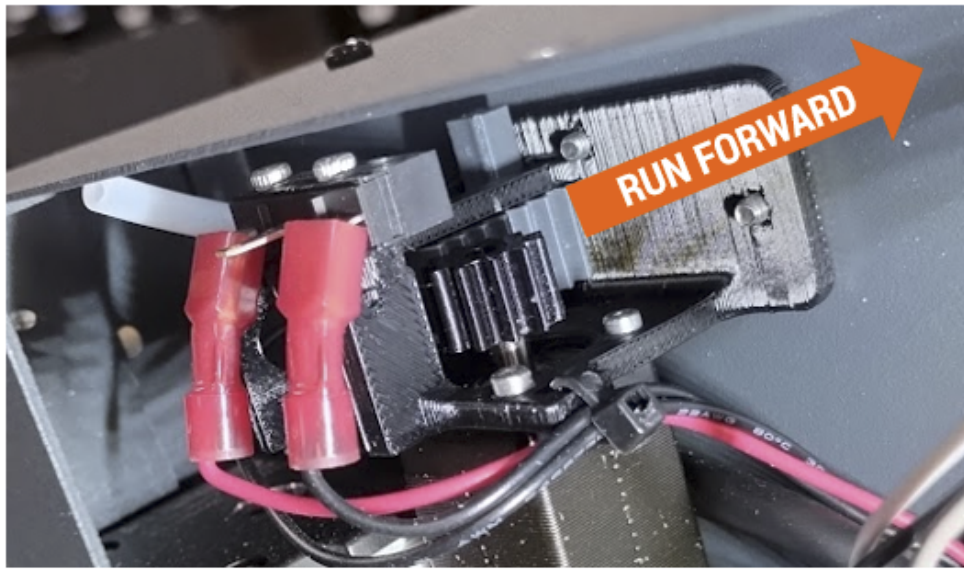




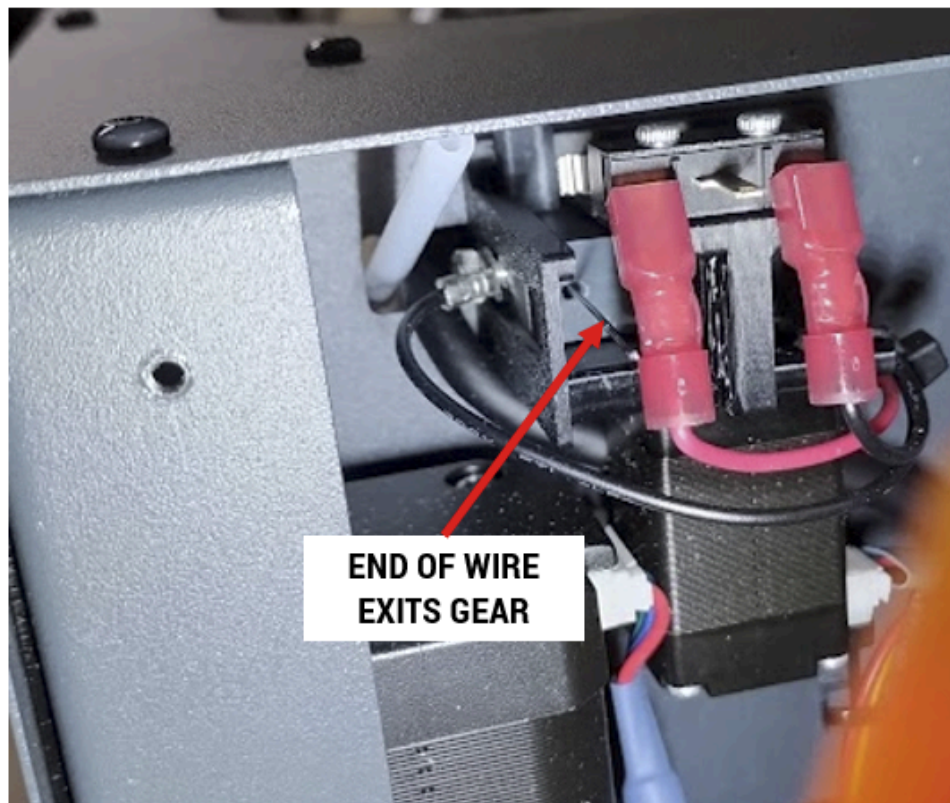
4. Get the nitinol wire installed into the hole in the rack gear. Sometimes the easiest way to do this is to remove the spiral sleeve from the PTC fitting on the bulkhead so you have better control.



5. Back the BP wire up slightly and move the BP motor forward to the deployed position with your finger.



6. Carefully fish the end of the BP wire around until you see/feel it slide through the gear.



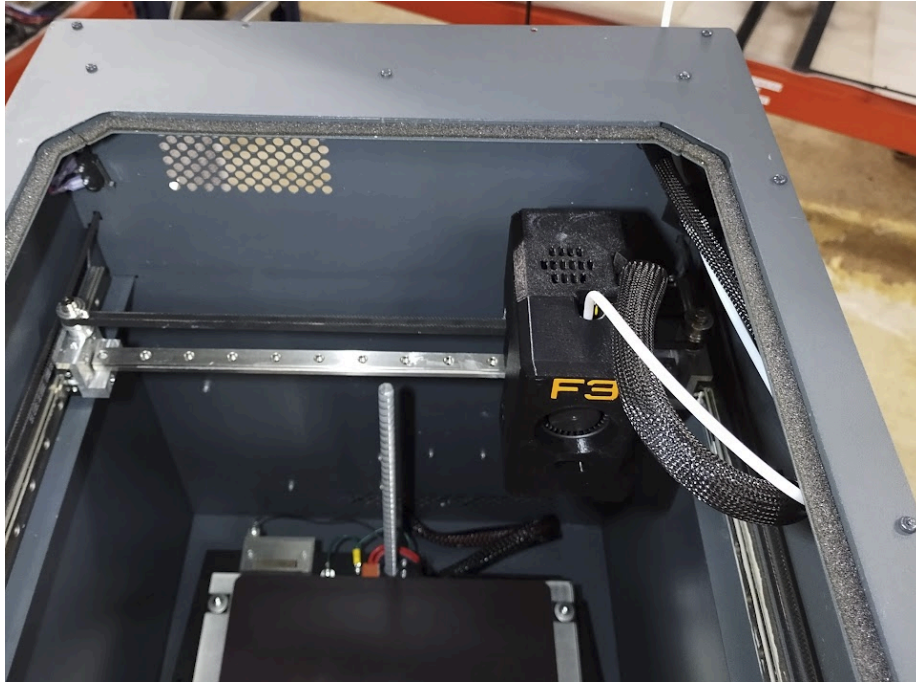
7. If you removed the spiral sleeve from the PTC, now is the time to reinstall it and make sure it's **fully** bottomed out in the fitting.
8. Tighten the BP wire capture screw slightly so that it can't slide back out of the gear. Once you install the collar end in the toolhead, getting the free end back through the gear if it comes out is a pain.

ADJUSTING THE NEW BED PROBE WIRE

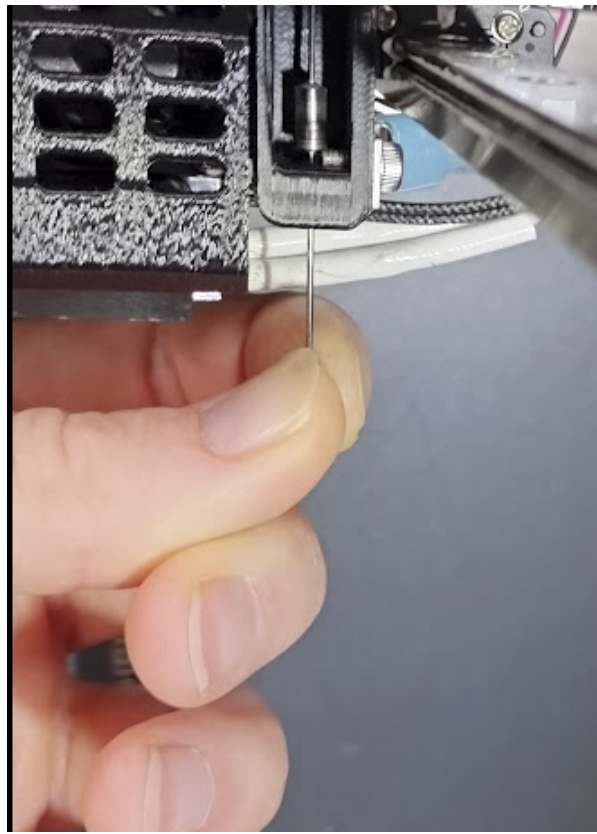
This process is critical to proper functioning of the bed probe system. Follow these steps carefully.

Some people find this easier with two people.

1. Position the toolhead in the rear right corner. It doesn't have to be hard against the mechanical stops but should be within 1.5" of the corner.

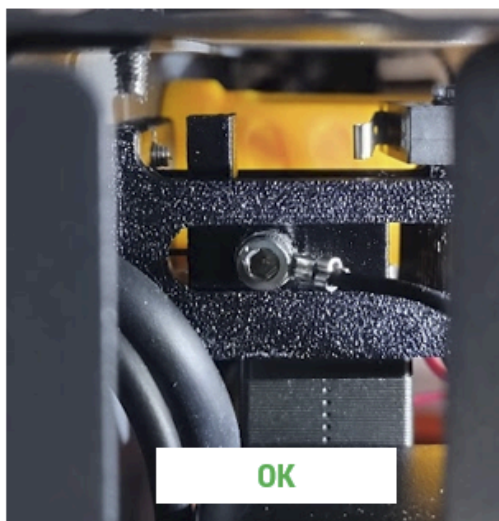


2. On the bed probe motor assembly, loosen the BP wire locking screw so that you can slide the bed probe wire independently of the gear motion.
3. Using your fingers, at the toolhead **gently** pull the BP wire down to the deployed position and hold it there.



4. Using a 2.5mm ball end hex drive, manipulate the position of the gear so that the end is approx 3-4mm from the fully forward position.

NOTE: Some of the following pictures were taken on a printer without side panels installed, so that the position of the gear is more clear.



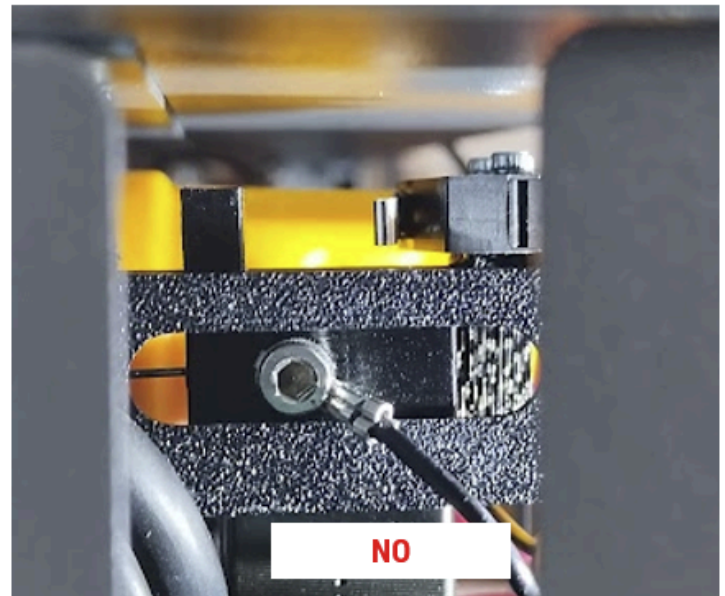
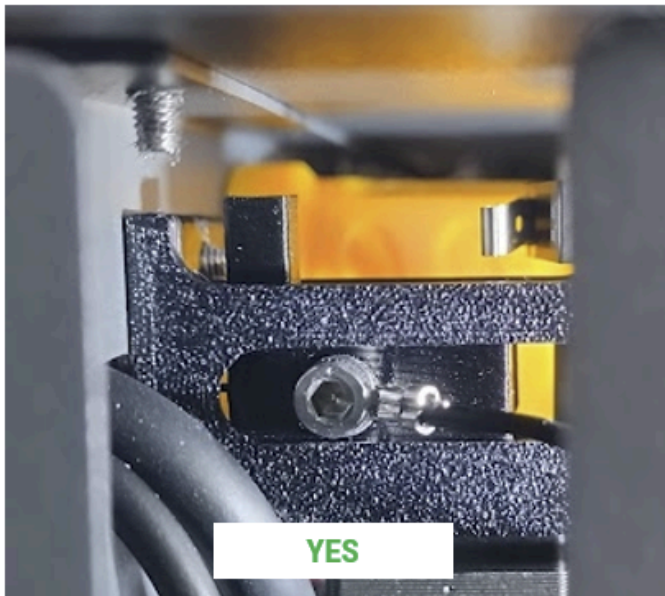
These pictures were taken from the outside looking in, with the outer skin not installed.

5. Tighten the BP wire locking screw so that it retains the wire, but is not fully tight. The electrical wire ring terminal should still have some wiggle.

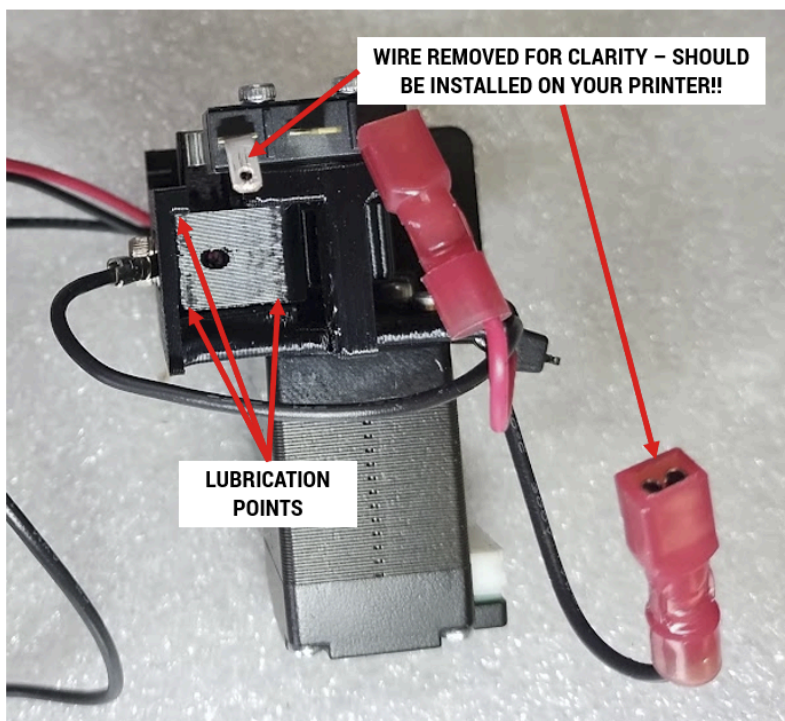
6. Run the BP motor gear back and forth by hand to make sure the collar can reach the fully deployed stop before the gear runs out of travel. Loosen the locking screw and adjust as needed to achieve the necessary overtravel margin.

See [THIS VIDEO](#) for what it should look like at this point.

7. Once you're satisfied with the position of the gear, tighten the locking screw until the electrical wire ring terminal is no longer free to rotate.
 - a. Make sure the ring terminal points straight back so that it does not cause drag.



8. If it's available, add a few drops of a lightweight lubricant such as Triflow to the gear's slide.



9. Proceed to the TESTING section before installing the rear panel.

TESTING

1. Connect the power cord and power on. You may need to reconnect the filter fan if the print head, bed, or chamber is warm, to avoid fan errors.
2. Go to the *Control* screen. Press "Deploy" and "Retract". Make sure the bed probe moves smoothly.
 - a. No motor stalling or groaning noises
 - b. The bed probe collar reaches the low stop before the gear runs out of travel
 - c. The gear travels all the way back and triggers the endstop.
 - d. Check probe movement with the toolhead in 2-3 various positions across the XY plane.
3. Go to *Utilities > Bed Leveling > Run Auto Level* to make sure the bed leveling process completes without errors or weird noises from the bed probe motor.
4. Run *Utilities > Bed Leveling > Run Nozzle Offset*, as your nozzle offset may have changed. Again, make sure it completes without errors or weird noises.

REINSTALLATION

Follow [THESE INSTRUCTIONS](#) to reinstall the rear panel.

STILL NEED HELP?

Contact our support team:

support@fusion3design.com

<https://www.fusion3design.com/contact-support/>

